

## REMARKS

Claims 1-2, 4-10, 12-16, and 19-20 as amended, and new claims 21-24 are pending for the Examiner's review and consideration. Claims 17 and 18 have been cancelled without prejudice. Claim 1 has been amended to remove the characteristics of the film-forming polymer. Claims 1 and 10 have been amended to correct a typographical error and recite a preferred embodiment that includes at least one each of a fluorescent dye and a non-fluorescent dye (*See, e.g.*, Specification at page 5, lines 14-16). Claims 5 and 6 have been amended accordingly to reflect the recitation of the non-fluorescent dye in claim 1. Claims 1 and 10 have been further amended to recite that the free radicals decolorize the fluorescent dye, non-fluorescent dye, or both, while claims 8 and 9 have been amended to recite that the free radicals decolorize the fluorescent dye (*See, e.g.*, Specification at page 5, lines 20-22 and page 7, lines 11-18). Claim 4 has been amended to recite vinyl resins (*See, e.g.*, Specification at page 7, lines 20-25). Claim 15 has been amended to reflect the changes made to claim 4. Claim 2 has been amended to correct grammatical and typographical errors. Claims 4-6, 8-10, and 12-16 have each been amended to correct a grammatical error. Specifically, the terms "the" and "a" have been included as needed for proper antecedent basis. Claim 7 has been rewritten in independent form. Claim 20 has been amended to recite a recording layer thickness of 200 nm to less than 500 nm (*See, e.g.*, Specification at page 6, line 25). Claims 1, 2, 4, 7, and 13-16 have been amended to recite one or more of the recited components or mixtures thereof. New claims 21-24 are each directed to an additional component in the recording layer. In particular, claim 21 recites a compound that lowers the decomposition temperature of the compound capable of generating free radicals, while claim 22 specifically recites zinc, lead, or cadmium salt of an aliphatic acid; urea; or ethanolamine, or a combination thereof (*See, e.g.*, Specification at page 8, lines 1-3). Claim 23 recites a compound to prevent free radical oxygen deactivation, while claim 24 specifically recites that the compound that prevents free radical oxygen deactivation includes one or more of n-butylamine, dimethylaminoethyl methacrylate, diethyl-n-butylphosphine, isoamyl 4-dimethylaminobenzoate (*See, e.g.*, Specification at page 8, lines 9-11). No new matter or new issues have been introduced by any of the amendments or new claims herein, such that entry of the claims is warranted at this time.

Applicants appreciate the Examiner's recognition of the allowance of claim 7, 19, and 20 if rewritten to overcome the rejection(s) under 35 U.S.C. § 112, second paragraph, and to include all of the limitations of the base claim and any intervening claims on page 6 of the Office Action. As noted above, claim 7 has been rewritten in independent form.

Claims 1, 2, 4-10, and 12-20 were rejected under 35 U.S.C. § 112, second paragraph, as indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

The Office Action on page 2 suggests that spelling changes be made to certain terms in claims 1 and 2. Claims 1 and 2 have been amended accordingly. The Office Action indicates that claims 1 and 8-10 should state that the free radicals generated decolorize the dye to more clearly and distinctly recite the claimed invention. This language has been included in the claims. Lastly, the Office Action states that claim 4 should recite vinyl resins to support the recitation of claim 15. Claim 4 has been amended to recite the class of vinyl resins, while claim 15 has been amended to recite preferred vinyl resin species. In view of the above modifications, which are not intended to broaden or narrow the scope of the claimed invention, Applicants respectfully request that this rejection under 35 U.S.C. § 112, second paragraph, be reconsidered and withdrawn.

Claims 17 and 18 were objected to under 37 C.F.R. § 1.75(c) as being of improper dependent form for failing to further limit the subject matter of a previous claim. As claims 17 and 18 have been cancelled, this objection is now moot.

Claims 1, 4, 12, and 14-17 were rejected under 35 U.S.C. § 103(a) as obvious over EP 812698 to Katoh et al. ("Katoh") for the reasons set forth on page 3 of the Office Action.

Katoh is directed to a thermographic material that includes a support and a recording layer that includes a photolytic free radical generating agent capable of providing a free radical on absorption of light, a dye capable of being decolored by the free radical, and an anti-decolorizing agent (Page 2, lines 10-14). The photolytic free radical generating agent includes a dimer of 2,4,6-triarylimidazole, an azide compound such as 2-azidobenzoxadiazole, benzoylazide or 2-azidobenzimidazole, a pyridinium compound such as 3'-ethyl-1-methoxy-2-pyridothiacyanine perchlorate or 1-methoxy-2-methylpyridinium-p-toluenesulfonate, an organic halogen compound such as N-bromosuccinimide, tribromomethylphenylsulfone, iodine diphenyl, 2-trichloromethyl-5-(p-butoxystyryl)-1,3,4-oxadiazole or 2,6-bis(trichloromethyl)-4-(p-methoxyphenyl)-5-triazine, a carbonyl compound such as benzophenone, thioxanthone, anthraquinone or benzoin ether, an azo compound such as azobisisobutyronitrile and an organic sulfur compound such as an alkyldisulfide or mercaptan (Page 7, lines 46-53).

Claim 1 recites that the medium includes a non-fluorescent dye. In connection with the invention, non-fluorescent dye is more effective in transforming light power to heat

than fluorescent dye (Specification at page 9, lines 8-9). The non-fluorescent dye can decolorize, while not affecting the use of the medium (Specification at page 9, lines 5-6). Katoh does not appear to teach or suggest the use of a non-fluorescent dye to enhance light transformation to heat in the recording layer. Indeed, all of the Examples of Katoh include only one dye in the recording layer (*See Examples*), while Applicants have surprisingly and unexpectedly discovered that addition of a non-fluorescent dye improves performance of the recording layer. Accordingly, Applicants respectfully request that this rejection under 35 U.S.C. § 103(a) be reconsidered and withdrawn as no *prima facie* case of obviousness exists over the pending claims.

Claims 1-2 and 12-17 were rejected under 35 U.S.C. § 103(a) as obvious over JP 54-061541 to Tetsuo et al. ("Tetsuo") for the reasons set forth on pages 3-4 of the Office Action. The Office Action points to three examples on page 3 for the teaching of an organic solvent, a polymeric binder, 7.5 wt% of an oxidizing agent, and 1.5 wt% of a merocyanine dye coated to a thickness of 50 microns. Tetsuo teaches a heat-sensitive discoloring material that consists of (a) a film-forming binder, (b) merocyanine dye, and (c) an oxidizing agent (*See Abstract*).

Initially, Applicants note that the Patent Office is referring to text that is in Japanese, suggesting the Examiner has an English-language translation of Tetsuo. As Tetsuo was cited by the Examiner on a Form PTO-892, Applicants respectfully request that Applicants be provided the same English-language document the Examiner has been using in issuing Office Actions. Moreover, in view of the prejudicial delay in Applicants not receiving this document, Applicants respectfully request that any further Office Action be non-final, as an English translation of the Japanese language reference JP 54-061541 has not been provided by the Patent Office.

Based on Tetsuo's abstract, Tetsuo does not teach the amounts of dye recited in the claims or the presence of a non-fluorescent dye in the medium. Since Tetsuo does not appear to disclose or suggest each feature recited in the claims, a *prima facie* case of obviousness has not been made on the record. Accordingly, Applicants respectfully request that this rejection under 35 U.S.C. § 103 (a) be reconsidered and withdrawn.

Claims 1-2, 8-9, and 12-18 were rejected under 35 U.S.C. § 103(a) as being obvious over Tetsuo and JP 59-092448 to Sasaoka ("Sasaoka") for the reasons set forth on page 4 of the Office Action. The Office Action maintains that the abstract of Sasaoka discloses that the Naphthol Green B in the lower layer is bleached by the action of benzoyl peroxide in the upper layer.

Again, the abstract of Sasaoka does not teach the amounts of fluorescent dye recited in the claims, or the non-fluorescent dye, each of which is recited in independent claim 1 and the claims dependent thereon. Sasaoka therefore does not appear to disclose or suggest each feature of the claimed invention either singly or in combination with Tetsuo, such that a *prima facie* case of obviousness has not been made. Accordingly, Applicants respectfully request that this rejection under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

Claims 1-2, 4, 10, and 12-17 were rejected under 35 U.S.C. § 103(a) as obvious over Tetsuo in view of U.S. Patent No. 6,071,671 to Glushko et al. ("Glushko") and U.S. Patent No. 4,090,031 to Russell ("Russell") for the reasons set forth on pages 4-5 of the Office Action. Glushko is alleged to teach multilayered optical recording media which uses fluorescent layers interspaced with transparent spacer layers. Russell is alleged to teach the use of differently colored materials that are separated by spacer layers or support materials.

As discussed above, based on its abstract, Tetsuo fails to teach or suggest either: (1) the use of about 0.1% to 10% dye with a free-radical generating compound or (2) a non-fluorescent dye in the medium. Glushko and Russell do not remedy either deficiency. Glushko and Russell are relied on primarily for their teaching regarding the preparation of multilayer disks, *i.e.*, disks including spacer layers. Glushko and Russell, however, also do not teach the use of fluorescent dye in the recited amount, and do not appear to disclose a non-fluorescent dye, each as presently recited. Accordingly, Applicants respectfully request that this rejection under 35 U.S.C. § 103(a) be reconsidered and withdrawn as no *prima facie* case of obviousness has been made on the record.

Claims 1-2, 4-6, 10, and 12-17 were rejected under 35 U.S.C. § 103(a) as obvious over Tetsuo and U.S. Patent No. 5,665,522 to Vogel et al. ("Vogel") for the reasons set forth on page 5-6 of the Office Action. Vogel is alleged to teach a solution where 2 wt% of dye is combined with PMMA, 18 wt% ditolyliodonium hexafluorophosphate, and 9 wt% 2-ethyl-9,10-dimethoxyanthracene. The Office Action on pages 5-6 states that it would have been obvious to use other binders, such as those disclosed by Vogel, in place of the PVB used in the examples of Tetsuo with a reasonable expectation of success in forming a decolorizing layer.

On the contrary, Vogel relates to dyes that are useful as visible imaging dyes in positive-acting, no-process *printing plate* applications (Emphasis added) (Col. 1, lines 4-6). Vogel explains that in a typical work flow, a printing plate is exposed and developed before it is placed on press (Col. 1, lines 9-10). It is desirable for the exposed plate to show a

visible image (*i.e.*, print-out image) to aid in alignment and registration (Col. 1, lines 11-12). Accordingly, Vogel is not directed to the claimed invention. The present claims relate to DIP mediums for the recording layer of *optical disks*, and methods for obtaining *optical disks*. The fields of printing plates and optical disks are so distinct that Vogel would not provide any motivation, much less a reasonable expectation of success, to one of ordinary skill in the art. For example, Vogel requires a plate and exposure and development of the plate to show a visible image, while Tetsuo teaches heat-sensitive discoloring material for recording media, *e.g.*, optical disks. Thus, there is no motivation to combine the printing plate of Vogel with the discoloring material of Tetsuo.

Nevertheless, even if a motivation existed to combine Vogel and Tetsuo, and the references were applied here, Vogel does not appear to teach a non-fluorescent dye capable of absorbing recording laser radiation and transforming the absorbed radiation to heat, as presently recited in independent claims 1 and 10. Vogel discloses a photosensitive composition comprising: (a) a photoinitiator which generates a strong acid upon exposure to radiation; (b) a polymer having acid-labile groups pendant from the polymer backbone; and (c) a dye capable of being irreversibly bleached by the acid, providing a visible image upon exposure to radiation (Col. 2, lines 62-67). The dyes are not described as possessing fluorescent or non-fluorescent properties.

Vogel does describe a solution containing 0.01 g of dye and 0.045 g 2-ethyl-9,10-dimethoxyanthracene (Col. 24, lines 1-8). Applicants concede that anthracene dyes are generally fluorescent. Vogel, however, does not appear to teach or suggest that the other dye in the solution is a non-fluorescent dye.

As discussed above, Tetsuo (*See Abstract*) fails to teach or suggest a non-fluorescent dye in the medium. Vogel does not appear to remedy this deficiency. Accordingly, Applicants respectfully request that this rejection under 35 U.S.C. § 103(a) be reconsidered and withdrawn, because a *prima facie* of obviousness has not been made on the record.

Accordingly, the entire application is now in condition for allowance, early notice of which would be appreciated. Should the Examiner not agree with the Applicants' position, then a personal or telephonic interview is respectfully requested to discuss any remaining issues and expedite the eventual allowance of the application.

Respectfully submitted,

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Date

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